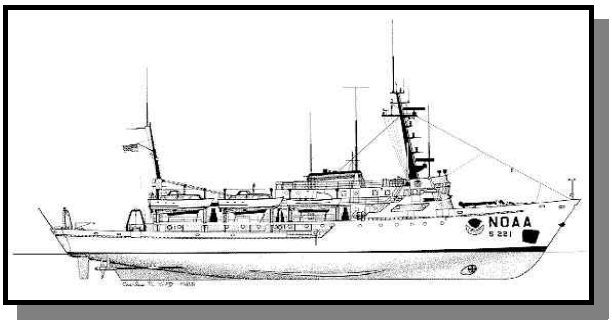
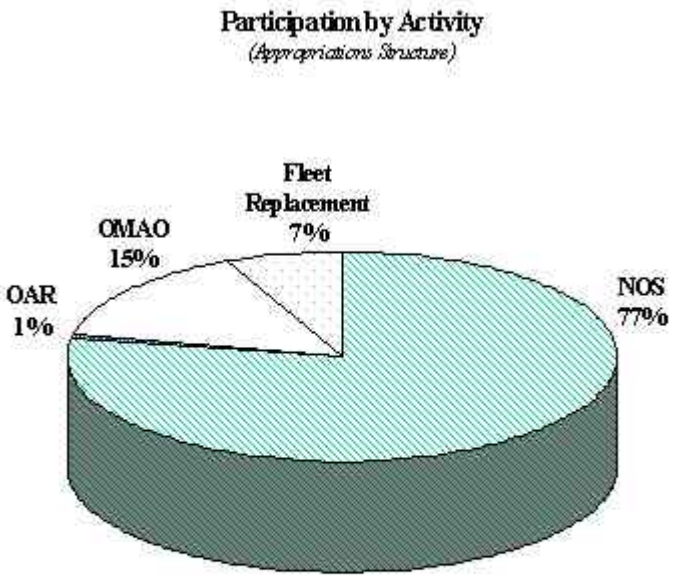


The NOAA Ship RAINIER conducts hydrographic surveys used for nautical charting.

Promote Safe Navigation

Total Request: $137,069,000



Mission - By 2005, merchant ships, fishing vessels and recreational boats will safely ply our coastal waters, electronically guided by space-based navigation and advanced information technologies. NOAA will revolutionize U.S. marine navigation, mapping and surveying and assist commercial shipping in moving increased cargoes safely and efficiently into and out of the Nation's ports and harbors. NOAA will provide a precise satellite derived reference system as the basis for the Nation's nautical data and geographical positioning needs.

Challenge - Ships have doubled in length, width and draft in the last 50 years and seagoing commerce has tripled, leading to increased risk in the Nation's ports. With 3500 commercial shipping accidents annually, the potential for serious injury to lives, property and the environment is compounded by the fact that over half the cargo transported is oil or hazardous material. The total volume of maritime trade will more than double by the year 2020, posing a significant challenge to the aging infrastructure of the U.S. Marine Transportation System (MTS).

NOAA's navigation services are a key component of the MTS, but more than 50 percent of NOAA's nautical charting data were obtained before 1940. One-third of the National Shoreline, for which NOAA is responsible, has yet to be mapped. Two-thirds of the data used for tidal predictions are more than 40 years old, and the physical plant of water level measurement stations is in decline. Finally, the existing coordinate reference system must be modernized to provide the higher accuracy and accessibility available from the Global Positioning System (GPS). In recent years, dramatic improvements in efficiency and accuracy have been realized in the technology used to collect data, and NOAA is capitalizing on these technologies and partnerships to address its MTS infrastructure responsibilities.

Implementation Strategy - The objectives of the Promote Safe Navigation goal are to:

- build, maintain, and deliver a digital nautical charting database to underpin new electronic navigation systems which integrate satellite positioning, tidal heights and currents, radar and sonar, and navigational aids;

- update nautical surveys of the Nation's coastal areas using full-bottom coverage technologies;

- define the national shoreline in an accurate and consistent manner using state of the art technology to serve the Nation's navigational and coastal needs;

- provide mariners with real-time observations and forecasts of water levels, tides and currents, and weather conditions in ports; and

- continue to evolve the National Spatial Reference System to anticipate and fulfill the growing demands for more accurate and timely positioning services critical to digital mapping, charting, and surveying.

Benefits - New technology, including full-bottom nautical surveys, digital charting, satellite positioning (GPS) and real-time observations of tides and currents promise to reduce maritime transportation risks, enhance environmental protection and heighten the competitiveness of the U.S. shipping industry. With today's deep-draft container ships, each additional inch of clearance translates into tens of thousands of dollars in additional cargo trade in or out of the United States. Development of real-time environmental and prediction systems will provide important data where users request it. Location, ship dynamics, and precise depth data will alert mariners to potential accidents and will bolster navigational safety and efficiency. In the years ahead, NOAA will continue to streamline its process of collecting and processing data and delivering charts to the maritime community. Particular emphasis will be placed on improving the delivery of electronic formats. By positioning products and processes for the decades ahead, NOAA will continue to ensure that the Nation's maritime commerce remains safe, efficient, competitive, and responsive to customer requirements. NOAA's nautical data will also support the needs of coastal zone planners, regulatory officials and researchers as they work to ensure the safe, sustainable and efficient development of our coastal and ocean resources.

FY 2000 Accomplishments

NOAA's National Ocean Service (NOS) produced 225 new editions of nautical charts and 65 electronic navigational charts (ENC) of major harbor areas; acquired and processed data from 61 in-house hydrographic surveys; accepted 20 contract surveys; and reduced the hydrographic survey backlog to approximately 32,500 square nautical miles. The National Spatial Reference System, which provides the basic positional framework for the Nation's spatial data infrastructure, now has 100% of its Federal Base Network geodetic control stations with 2 centimeter horizontal accuracy (20 stations added), and 65% with better than 5 centimeter accuracy (145 stations added); in addition, 22 more National Continuously Operating Reference Stations (CORS) came on line in FY 2000, providing 86% of the Nation with coverage within 200 km of a single National CORS. As part of the Height Modernization Effort 13 stations in the National CORS network were provided with North American Vertical Datum 1988 (NAVD 88) heights with better than 5 centimeter accuracy. These advances are accomplished primarily through the NOS mapping, charting, geodesy, and observation and prediction subactivities.

Key FY 2002 Activities

- Produce 250 new editions of nautical charts and an additional 65 electronic navigational charts for a total of 200 ENC's.
- Map another 20 percent of the shoreline depiction backlog in the 40 critical high priority ports.
- Reduce the critical hydrographic survey backlog by an additional 3.5 %.
- Integrate NOAA's navigation-related tools through the National Spatial Reference System to deliver more accurate and timely 3-dimensional positioning capability.
- Improve the operational capacity of the 172 National Water Level Observation Network stations and develop real time capabilities in support of Physical Oceanographic Real-Time Systems (PORTS) for navigation and coastal resource management.
- Implement the comprehensive quality assurance capabilities and modernization necessary to support additional PORTS.

Key Performance Measures

	1997 act.	1998 act.	1999 act.	2000 act.	2001 est.	2002 est.
Nautical chart editions (suite of 1000) Lithographic/Altemative Methods[A]	338	360	250	225	250	250
Electronic Navigational Charts (ENC) cumulative[B]	N/A	N/A	37	65	135	200
Reduce critical area survey backlog (43,000 SNM backlog) Cumulative reduction (%)[C]	12	15.5	20.7	24.3	27.9	31.4
National Water Level Observation Network (NWLON) Cumulative % modernized[D]	78	75	91	93	100	100
National Spatial Reference System (NSRS) Cumulative % complete[E]	60	69	58	71	75	80

A. This Performance Measure replaced the Percentage of Chart Suite Printed. The FY2001 target for 200 charts is to have these charts ready for printing if and when requested.

B. This performance measure replaces the "Cumulative % of Vector Charts Collected" with "ENC Vector Charts Collected, Maintained and Released (cumulative)."

C. A one-time change in accounting caused cumulative reduction in backlog to be adjusted in FY1999 estimates. To improve estimates for contracting, contract miles are now counted when awarded and not when accomplished.

D. This performance measure has been revised to "Percent of National Water Level Observation Network modernized"(cumulative). The total number of NWLON stations changed from 175 to 172 in FY 2001.

E. The vertical component of the NSRS performance measure was expanded in FY1999 to include additional networks not previously tracked that serve to measure height modernization performance. The target base reference for Continuously Operating Reference Stations increased from 200 to 300 in FY 1999.

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